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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/595,084	02/03/2006	Kazuhiro Yanagisawa	Q92943	2328

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EXAMINER	
SCOTT, ANGELA C	

ART UNIT	PAPER NUMBER
1796	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/595,084	YANAGISAWA ET AL.	
	Examiner	Art Unit	
	Angela C. Scott	1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 July 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Applicant's response of July 29, 2008 has been fully considered. Claims 1-4 and 8 have been amended and new claims 12-15 have been added. Claims 1-15 are pending.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yanagisawa et al. (US 2003/0088006) in view of Abdou-Sabet et al. (US 4,594,390).

Regarding claim 1, Yanagisawa et al. teaches a method for producing a rubber master batch comprising the step of mixing a rubber latex (rubber solution) with a slurry of a filler dispersed into water (¶19).

Yanagisawa et al. does not teach that the mixing of the rubber solution and the slurry solution takes place in either a static mixer or a high shear mixer comprising a rotor and a stator portion and having a shear speed of not less than 2000/s. However, Abdou-Sabet et al. does teach using a high shear mixer (Col. 2, line 60) with a shear rate of at least 2000/s (Col. 1, lines 35-40) to mix a rubber composition. Yanagisawa et al. and Abdou-Sabet et al. are analogous art because they are from the same field of endeavor, namely that of mixing rubber compositions. At the time of the invention, a person of ordinary skill in the art would have found it obvious to use a high shear mixer with a shear rate of at least 2000/s, as taught by Abdou-Sabet et al., to mix the rubber composition, as taught by Yanagisawa et al., and would have been motivated to do so because the rubber composition produced this way exhibit superior tensile properties and are more extrudable (Col. 1, lines 40-55).

Regarding claim 2, Yanagisawa et al. additionally teaches that the filler is selected from the group consisting of carbon black, silica, and an inorganic filler represented by the following formula:

$$nM_1 \cdot xSiO_y \cdot zH_2O$$

wherein M_1 is at least one member selected from the group consisting of metals of aluminum, magnesium, titanium, calcium or zirconium, oxides of the preceding metals, hydroxides of the preceding metals, hydrates of the preceding oxides and hydroxides, and carbonates of the preceding metals; n is an integer of 1 to 5, x is an integer of 0 to 10, y is an integer of 2 to 5, and z is an integer of 0 to 10 (¶¶13-14).

Regarding claims 3 and 4, Yanagisawa et al. additionally teaches that the rubber solution is a natural rubber latex (¶19).

Regarding claim 5, Yanagisawa et al. additionally teaches that the amide linkages in the natural rubber latex are cleaved with a protease (¶¶19 and 21).

Regarding claim 6, Yanagisawa et al. additionally teaches when the natural rubber latex (rubber solution) is mixed with the slurry solution, the mixture is coagulated (¶42) and has a water content of preferably 10% or more (¶45) and then the mixture is dried by applying a mechanical shearing force (¶44).

Regarding claim 7, Yanagisawa et al. additionally teaches that the drying under shear force can be carried out by using a known kneader, preferably by a continuous kneader in view of industrial productivity. More preferably, a corotating or counterrotaing twin-screw kneading extruder is used (a screw-type continuous milling machine) (¶44).

Regarding claim 8, Yanagisawa et al. additionally teaches a natural rubber master batch obtained by the above methods (¶46).

Regarding claim 9, Yanagisawa et al. additionally teaches a natural rubber composition prepared by using the natural rubber master batch (¶47).

Regarding claims 10 and 11, Yanagisawa et al. additionally teaches that the rubber composition is applicable to tire applications as well as belts (¶115).

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yanagisawa et al. (US 2003/0088006) in view of Abdou-Sabet et al. (US 4,594,390) as applied to claim 1 above, and further in view of Lopez-Serrano Ramos et al. (US 2002/0111413)..

Yanagisawa et al. teaches the basic method of claim 1. Yanagisawa et al. does not teach that the rubber solution and the slurry solution are substantially simultaneously charged. However, Lopez-Serrano Ramos et al. teaches a process for making a rubber composition where

a slurry solution and a rubber solution are both charged into a mechanical disperser for mixing (¶57). Since it does not specify which one is charged first, one of ordinary skill would interpret this teaching to mean that they are charged simultaneously. Yanagisawa et al. and Lopez-Serrano Ramos et al. are analogous art because they are from the same field of endeavor, namely that of process of making filled rubber compositions. At the time of the invention, a person of ordinary skill in the art would have found it obvious to simultaneously charge the rubber solution and the slurry solution, as taught by Lopez-Serrano Ramos et al., in order to produce the rubber composition, as taught by Yanagisawa et al., and would have been motivated to do so because simultaneously charging the solutions into the mixing chamber will give a more evenly mixed and dispersed rubber composition.

Claims 2-11 and 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yanagisawa et al. (US 2003/0088006) in view of Lopez-Serrano Ramos et al. (US 2002/0111413).

Regarding claim 13, Yanagisawa et al. teaches a method for producing a rubber master batch comprising the step of mixing a rubber latex (rubber solution) with a slurry of a filler dispersed into water (¶19).

Yanagisawa et al. does not teach that the mixing of the rubber solution and the slurry solution takes place in a static mixer. However, Lopez-Serrano Ramos et al. teaches a rubber solution and a slurry solution being mixed with a static mixer (¶57). Yanagisawa et al. and Lopez-Serrano Ramos et al. are analogous art because they are from the same field of endeavor, namely that of process of making filled rubber compositions. At the time of the invention, a person of ordinary skill in the art would have found it obvious to use a static mixer, as taught by Lopez-Serrano Ramos et al., to mix the rubber composition, as taught by Yanagisawa et al., and would have been motivated to do so because static mixers are standard mixers in the art and they are good for mixing together 2 liquids.

Regarding claim 2, Yanagisawa et al. additionally teaches that the filler is selected from the group consisting of carbon black, silica, and an inorganic filler represented by the following formula:

$$nM_1 \cdot xSiO_y \cdot zH_2O$$

wherein M_1 is at least one member selected from the group consisting of metals of aluminum, magnesium, titanium, calcium or zirconium, oxides of the preceding metals, hydroxides of the preceding metals, hydrates of the preceding oxides and hydroxides, and carbonates of the preceding metals; n is an integer of 1 to 5, x is an integer of 0 to 10, y is an integer of 2 to 5, and z is an integer of 0 to 10 (¶¶13-14).

Regarding claims 3 and 4, Yanagisawa et al. additionally teaches that the rubber solution is a natural rubber latex (¶19).

Regarding claim 5, Yanagisawa et al. additionally teaches that the amide linkages in the natural rubber latex are cleaved with a protease (¶¶19 and 21).

Regarding claim 6, Yanagisawa et al. additionally teaches when the natural rubber latex (rubber solution) is mixed with the slurry solution, the mixture is coagulated (¶42) and has a water content of preferably 10% or more (¶45) and then the mixture is dried by applying a mechanical shearing force (¶44).

Regarding claim 7, Yanagisawa et al. additionally teaches that the drying under shear force can be carried out by using a known kneader, preferably by a continuous kneader in view of industrial productivity. More preferably, a corotating or counterrotaing twin-screw kneading extruder is used (a screw-type continuous milling machine) (¶44).

Regarding claim 8, Yanagisawa et al. additionally teaches a natural rubber master batch obtained by the above methods (¶46).

Regarding claim 9, Yanagisawa et al. additionally teaches a natural rubber composition prepared by using the natural rubber master batch (¶47).

Regarding claims 10 and 11, Yanagisawa et al. additionally teaches that the rubber composition is applicable to tire applications as well as belts (¶115).

Regarding claim 14, Yanagisawa et al. additionally teaches that the rubber masterbatch is coagulated by using a coagulant (¶42).

Regarding claim 15, Yanagisawa et al. does not teach that the rubber solution and the slurry solution are substantially simultaneously charged. However, Lopez-Serrano Ramos et al. teaches a process for making a rubber composition where a slurry solution and a rubber solution

are both charged into a mechanical disperser for mixing (¶57). Since it does not specify which one is charged first, one of ordinary skill would interpret this teaching to mean that they are charged simultaneously. At the time of the invention, a person of ordinary skill in the art would have found it obvious to simultaneously charge the rubber solution and the slurry solution, as taught by Lopez-Serrano Ramos et al., in order to produce the rubber composition, as taught by Yanagisawa et al., and would have been motivated to do so because simultaneously charging the solutions into the mixing chamber will give a more evenly mixed and dispersed rubber composition.

Response to Arguments

Applicant's arguments with respect to claims 1-15 have been considered but are moot in view of the new ground(s) of rejection.

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Angela C. Scott whose telephone number is (571) 270-3303. The examiner can normally be reached on Monday through Friday, 8:30am to 5:00pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Eashoo can be reached on (571) 272-1197. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Mark Eashoo, Ph.D./
Supervisory Patent Examiner, Art Unit 1796
27-Sep-08

/A. C. S./
Examiner, Art Unit 1796